



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/992,060	11/21/2001	Robert W. Parish	7240 US	4859

30078 7590 09/08/2006

MATTHEW D. RABDAU  
TEKTRONIX, INC.  
14150 S.W. KARL BRAUN DRIVE  
P.O. BOX 500 (50-LAW)  
BEAVERTON, OR 97077-0001

EXAMINER

CASCHERA, ANTONIO A

ART UNIT PAPER NUMBER

2628

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/992,060

Applicant(s)

PARISH ET AL.

Examiner

Antonio A. Caschera

Art Unit

2628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lusignan et al. (U.S. Patent 5,391,983) in view of Holcomb (U.S. Patent 5,115,189).

In reference to claims 1 and 4, Lusignan et al. discloses a method and apparatus for determining electric power usage in an electric power network, sensing the power usage and displaying results to a user via an electronic meter (see column 1, lines 26-30, 46-51, columns 1-2, lines 66-21 and column 2, lines 48-63). Lusignan et al. explicitly discloses providing a more accurate reading for signals at lower levels by generating a shaped dither signal, the signal created by an oscillator in a square wave, sinusoidal, triangular or sawtooth shape (see column 6, lines 8-15 and 22-26). Lusignan et al. then discloses adding the shaped dither signal with a dimensional value of each data for a detected waveform to produce filtered data point values (see column 6, lines 40-44 and Figures 5(a), 5(b)). Note, “dither waveform(D)” and “Actual current plus “dither”” references in Figure 5(b)). Lusignan et al. does not explicitly disclose subsampling the data points to produce a lower resolution waveform for display however Holcomb does. Holcomb discloses a method and apparatus to prevent aliasing while sampling

Art Unit: 2628

an input signal (see column 2, lines 10-12). Holcomb discloses sampling the input signal by creating randomly selected time intervals for sampling (see columns 3-4, lines 53-11) so that less samples are ultimately selected resulting in a lower resolution waveform (see Figures 4-6, in Figure 4, the number of “samples” is greater than “dithered stored values”). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the waveform sensing and adjusting techniques of Lusignan et al. with the waveform subsampling and displaying techniques of Holcomb in order to improve the feedback of results from power metering devices such as digital oscilloscopes, reducing the possibility of aliasing in such devices (see column 2, lines 27-33 of Holcomb).

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lusignan et al. (U.S. Patent 5,391,983), Holcomb (U.S. Patent 5,115,189) and further in view of Ward (U.S. Patent 6,571,189 B1).

In reference to claim 2, Lusignan et al. and Holcomb disclose all of the claim limitations as applied to claim 1 above. Neither Lusignan et al. or Holcomb explicitly disclose summing random numbers to produce the shaped dither signal however Ward does. Ward discloses a method of dithering threshold levels for making time stamp measurements of crossing points for minimizing digitization artifacts in oscilloscope measurements (see column 1, lines 15-22). Ward explicitly discloses an offset value generator producing random values which are then added to threshold values to create new threshold values (see column 5, lines 23-32 and lines 35-37), these threshold values representing a shaped dither signal (see Figure 7A). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the random number generation of Ward with the waveform sensing and adjusting techniques of

Art Unit: 2628

Lusignan et al. and waveform subsampling and displaying techniques of Holcomb in order to improve the display of the representative measured signal by statistically spreading out the sampling points, using integration of random numbers, while recording an accurate measurement (see column 2, lines 1-10 of Ward). Although Ward discloses implementing the offset random number generator in hardware or software, Ward does not explicitly disclose using a plurality of linear feedback shift registers however, it is well known in the art of computer processing to utilize linear feedback shift registers to create random numbers or random number sequences (Official Notice). It would have been obvious to one of ordinary skill in the art for Ward, who discloses implementing a random number generator in hardware, to use hardware linear feedback shift registers because it is well known in the art that linear feedback shift registers are utilized in producing random numbers or random number sequences.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lusignan et al. (U.S. Patent 5,391,983), Holcomb (U.S. Patent 5,115,189) and further in view of Dick et al. (U.S. Patent 6,333,649 B1).

In reference to claim 3, Lusignan et al. and Holcomb disclose all of the claim limitations as applied to claim 1 above. Neither Lusignan et al. or Holcomb explicitly disclose a lookup table containing data corresponding to a dither signal however Dick et al. does. Dick et al. discloses a circuit arrangement for direct digital synthesizers or numerically controlled oscillators which comprises a lookup table containing a sine/cosine lookup table used in calculating a dither signal (see column 1, lines 10-13, 51-53 and Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the lookup table type storage of Dick et al. with the waveform sensing and adjusting techniques of

Lusignan et al. and waveform subsampling and displaying techniques of Holcomb in order to conserve processing cycles by saving and allowing for easily fast access to already calculated and frequently used data.

### ***Response to Arguments***

4. Applicant's arguments filed 07/05/06 have been fully considered but they are not persuasive.

In reference to claims 1-4, Applicant argues the Lusignan reference adds a dither signal to an analog signal and not a dimensional component value of each data point, i.e. X and/or Y component (see page 3, 2<sup>nd</sup>-3<sup>rd</sup> paragraphs of Applicant's Remarks). Applicant further states that the purpose of the dither signal in Lusignan is not to produce filter data points but allow for more samples to be taken (see page 3, 3<sup>rd</sup> paragraph of Applicant's Remarks).

The Office disagrees and points out that Lusignan's dither signal is added to provide greater accuracy for the measured signal by creating more samples of the signal (See column 6, lines 47-50). The methodologies of Lusignan to provide a greater accuracy of the signal is seen as functionally equivalent to Applicant's "image alias rejection of a high dimensional rasterized waveform," since antialiasing does, in effect, provide a more accurate representation of data by eliminating or masking noise or unwanted data and the dithered waveform of Lusignan is disclosed as being displayed on an LCD display device (see column 5, lines 63-65 and Figure 5(b)), thereby providing the "image...waveform" of Applicant's claims. Further, Lusignan's "analog" signal is also broadly seen as inherently comprising "dimensional component values" and therefore the Office does not see the differences between adding the dither signal to the

Art Unit: 2628

analog signal of Lusignan versus the “dimensional component value of each data point,” of Applicant’s claims as brought out by the current claim language. Therefore, the Office maintains the previous rejection based upon Lusignan.

In reference to claims 1-4, Applicant further argues that Holcomb does not produce a lower resolution rasterized waveform for display (see page 4, 1<sup>st</sup> paragraph of Applicant’s Remarks). The Office disagrees as can be seen in Figure 6 of Holcomb, the digitized input signal (“B” in the Figure), is subsampled from four samples to produce dithered samples (see column 4, lines 19-25 and “D” of Figure 6) which is clearly a “lower resolution” waveform as opposed to signal “B.” Therefore, the Office maintains the previous rejection based upon Holcomb.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Antonio Caschera whose telephone number is (571) 272-7781. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung, can be reached at (571) 272-7794.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Art Unit: 2628

**or faxed to:**

**571-273-8300 (Central Fax)**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (571) 272-2600.

aac



**PATENT EXAMINER**

**9/1/06**



**KEE M. TUNG  
SUPERVISORY PATENT EXAMINER**